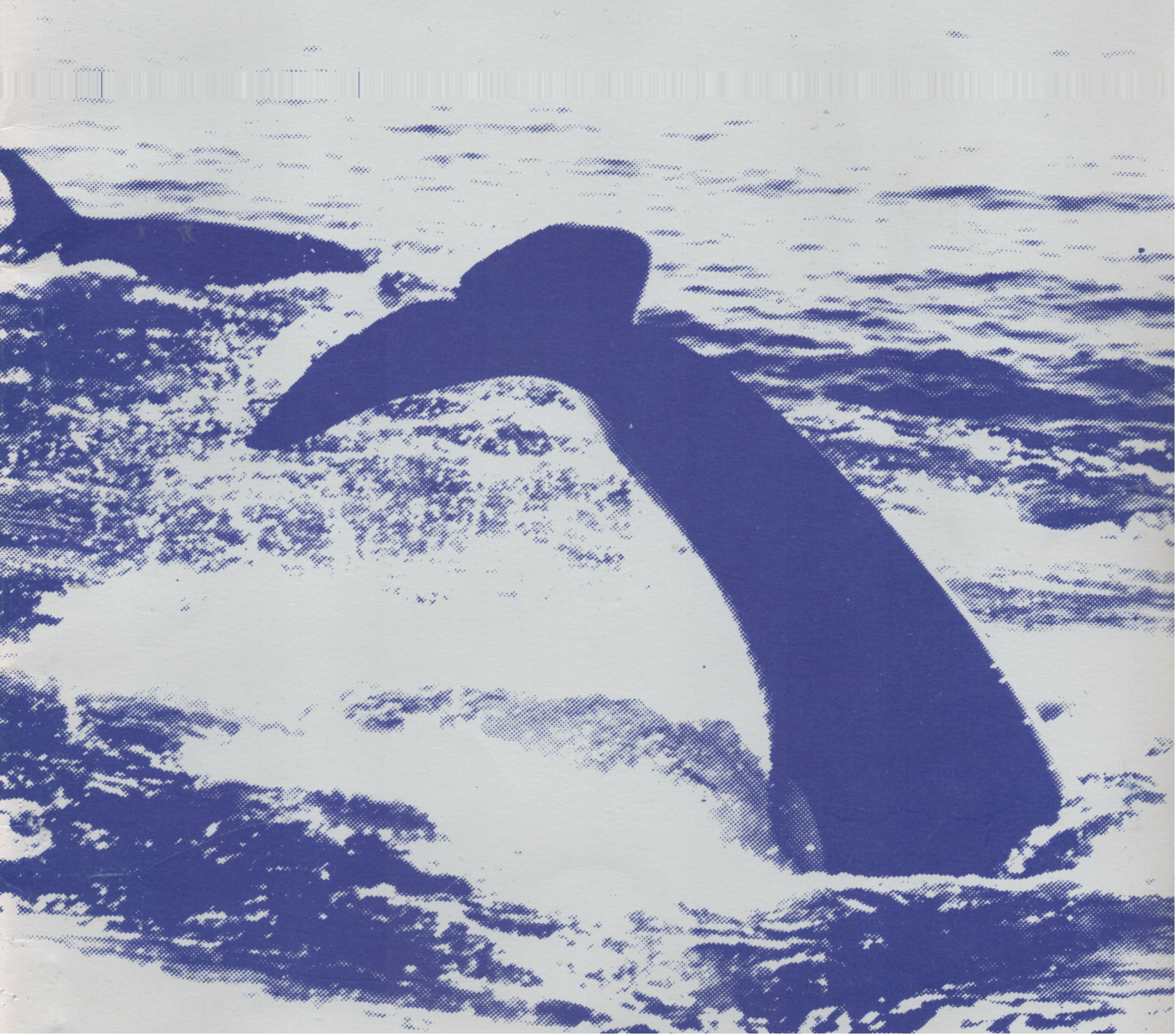


Ocean Research Report



The Ocean Research
and Education Society, Inc.
64 Commercial Wharf
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Expedition #15
r/v REGINA MARIS
San Diego, CA. - Juneau, AK.
24 June - 29 July 1979



SIGHTINGS OF MARINE MAMMALS
IN EASTERN NORTH PACIFIC COASTAL WATERS

Cruise Report of
r/v REGINA MARIS EXPEDITION #15
San Diego, California - Juneau, Alaska

Richard W. Osborne
Henk Van Beever

Prepared for Publication by Judith Perkins

Ocean Research and Education Society
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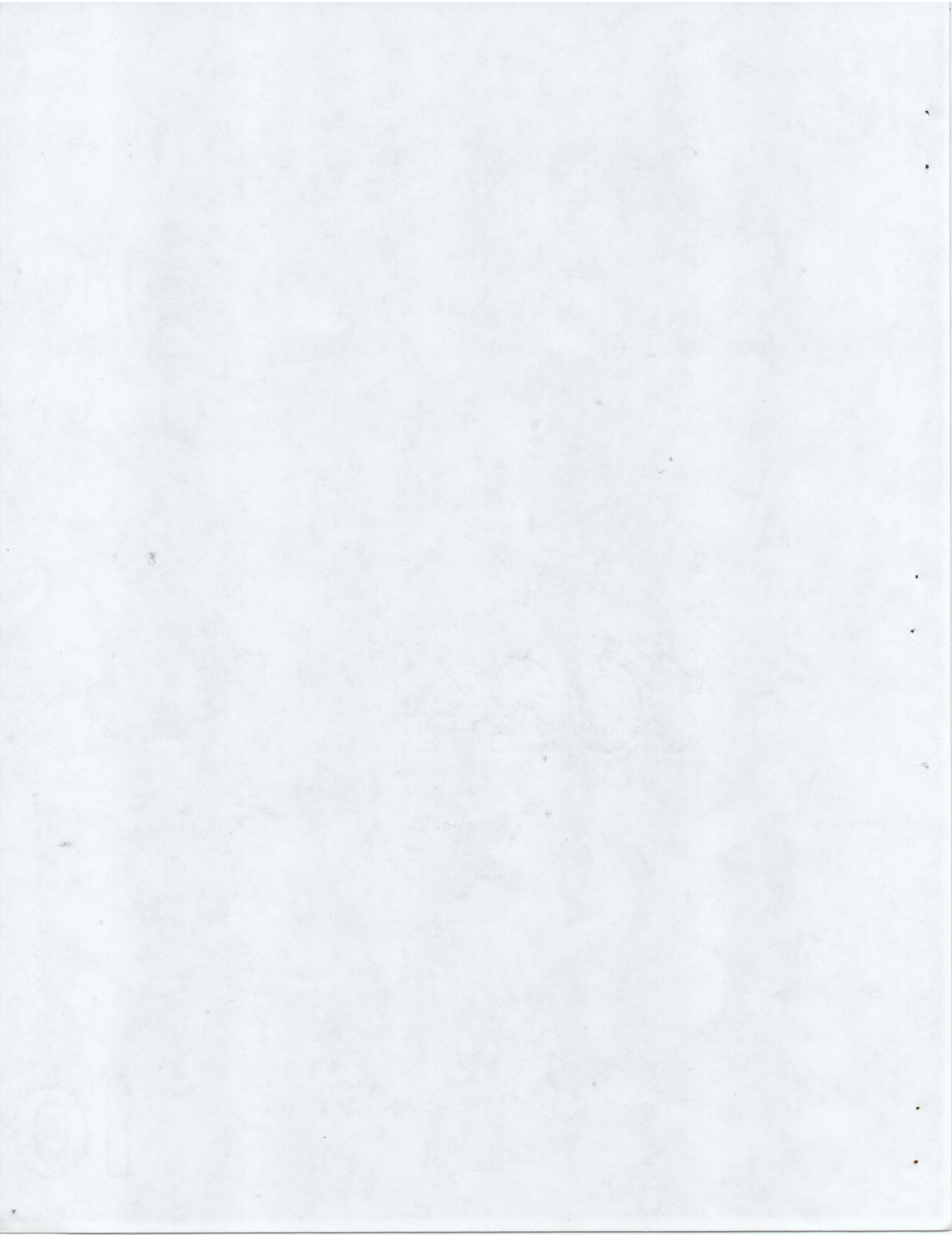
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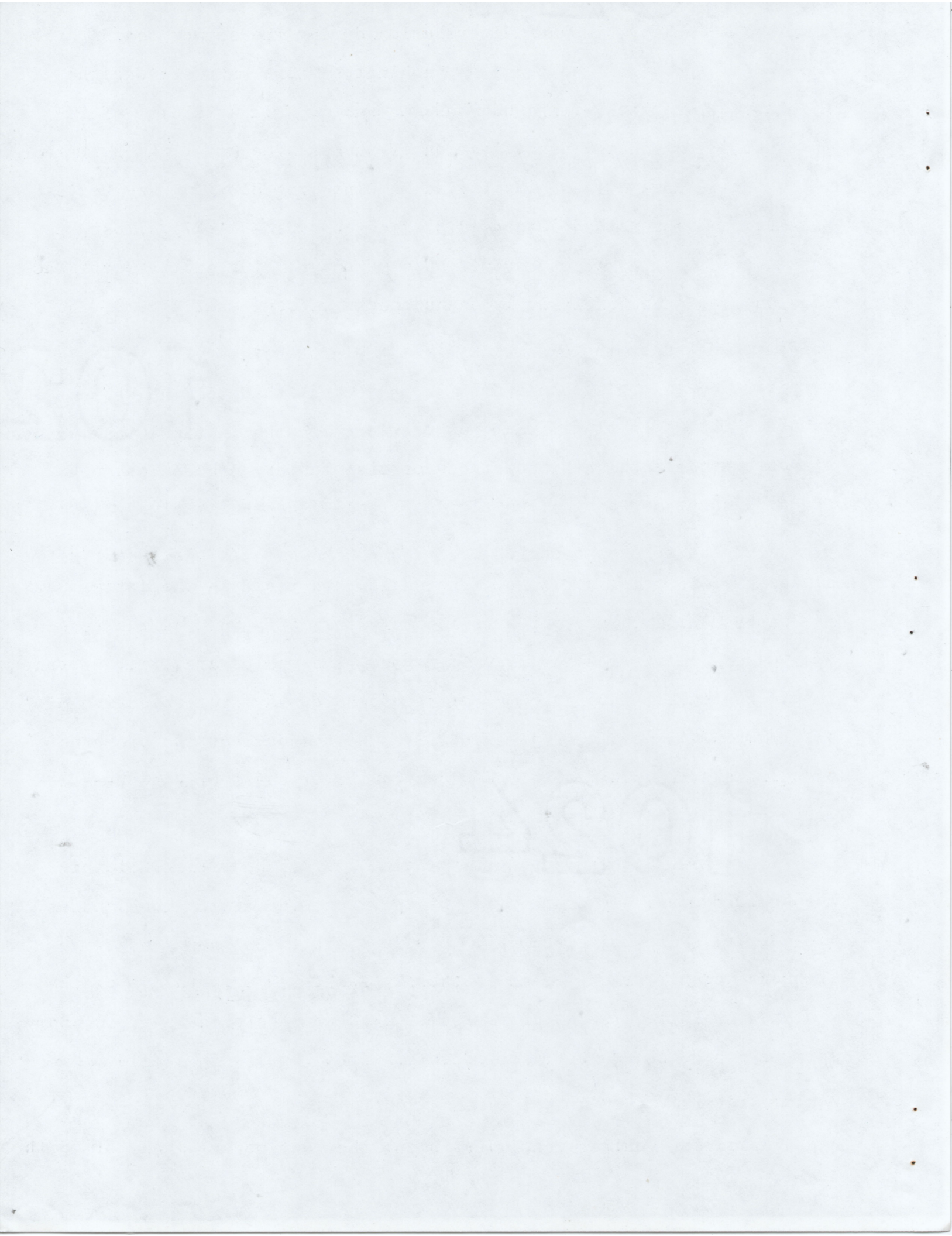
SUMMARY

r/v REGINA MARIS departed San Pedro, California on 27 June 1979 and motor-sailed northwest along the coast and inland waters of North America, arriving 28 July 1979 in Juneau, Alaska. Research goals of Expedition #15 were twofold: first, to examine the abundance of whales and dolphins along the edge of the western continental shelf for comparison with data from other years and the results of aerial surveys being conducted by the Coastal Marine Studies Laboratory at the University of California, Santa Cruz; and second, to determine where humpback whales in significant numbers were feeding in the inland waters of southeast Alaska in preparation for the studies of feeding techniques planned for Expedition #16.

Cetacean species observed were: humpback whale (M. novaeangliae), minke whale (B. acutorostrata), sperm whale (P. catodon), killer whale (O. orca), Risso's dolphin (G. griseus), Pacific white-sided dolphin (L. obliquidens), Dall's porpoise (P. dalli), and harbor porpoise (P. phocoena). Pinniped species were encountered in open water. Pinniped species sighted were: sea lion (Z. californianus), and harbor seal (P. vitulina). Field notes, photographs and underwater acoustic recordings were made during marine mammal encounters whenever feasible.

INTRODUCTION

Marine mammal sighting reports are useful documentations of the occurrence and distribution of many species and they are of particular importance for learning about rare and unusual species. As part of a continuing program of ocean research and student education, r/v REGINA MARIS maintains a log of all marine mammal sightings made during her expeditions to various parts of the world.



North Pacific humpback distribution during the summer season has been documented from the coast of Washington state north along the Alaska coast to the Bering and Chukchi Seas (A. Wolman 1978). Of importance is the photo-identification of summer humpback fluke patterns for comparison with those identified in wintering Hawaiian and Mexican populations (Jurasz and Jurasz 1978; Rice and Wolman 1977). Most photo-identification of the summer humpback population in the North Pacific has been done exclusively on humpbacks in southeast Alaska, and particularly Glacier Bay. The northern and southern extremes of the humpback summer feeding grounds have not been conclusively assessed or photo-documented.

Along the Washington coast, commercial fisherman have noted that for at least the past 10 years a population of approximately 40 humpback whales has been sighted on the south bank of the Juan de Fuca Canyon at about 35-55 miles offshore. The whales are there in the latter part of June and seem to move progressively farther off shore as the season progresses. As far as the fishermen know, the whales are still present in mid-September, roughly 50-60 miles offshore. A major objective of the r/v REGINA MARIS on this expedition was to document the presence of humpbacks in this region and along the outer coast of Vancouver Island, British Columbia.

Killer whale abundance in Washington state and British Columbia has been conclusively documented through photo-identification studies (Bigg et al 1976; Balcomb 1978). However, little is known about the abundance of killer whales in southeast Alaska. Documentation of the presence of killer whales in southeast Alaskan waters, as a preliminary survey to a detailed photo-identification study, was also a major objective of this expedition.

Prevailing weather conditions along the continental shelf of North

America are rarely favorable to marine mammal observation and the distribution of marine mammals in this region should be considered significant.

METHODS and MATERIALS

A constant watch was maintained by several observers stationed aloft on the foremast yards (height of eye to 80 feet) while the ship was underway. In addition, while in southeastern Alaskan waters, an aft watch was kept on the rear deck house (height of eye 16 feet). Photo-documentation of species observed was accomplished with 35mm cameras. Acoustic recordings were made using an Aquadyne (AQ-17) hydrophone and a Sharp Model RT-3388A cassette tape recorder with system response from 30Hz to about 15kHz. Sightings were logged as they occurred and behavioral notes were made during the observation period.

RESULTS

Humpback Whale, Megaptera novaeangliae, (Borowski, 1781)

During the study period, humpback whales were encountered on 27 different occasions, totaling 69 whales (see Charts 1 and 2). If estimated repeat observations are subtracted, a corrected total of 40+ individuals were counted. Only 7 individuals occurred outside southeastern Alaskan waters. Photo-identification of fluke patterns was attempted on 9 occasions. Final analysis of fluke photographs identifying individuals is pending correlation at this time.

Also notable was the occurrence of 5 humpback whales of the Washington coast encountered on the southern bank of Juan de Fuca Canyon as had been predicted from commercial fishermen's reports. A group of 4 adults and 1 calf were observed for over 2 hours, as they milled back and forth, apparently feeding. This supports fishermen's predictions of

a summer feeding population of humpback whales in this area and reinforces the utility for an intensive study of this habitat.

<u>Number of Whales Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude(°N)</u>	<u>Longitude(°W)</u>	<u>Comments</u>
2	29 Jun 79	1505	34°26.5'	120°37'	pair
5	09 Jul 79	1302	48°06'	125°29'	4 adults, 1 calf (photo-acoustic)
4	17 Jul 79	1450	56°17'	132°57'	adults (P & A)
2	"	2037	56°17'	132°59'	adults (Acoustic)
1	18 Jul 79	0705	56°20'	133°04'	adults
1	"	0711	56°21'	133°04'	adult (photo)
5	20 Jul 79	1324	57°11'	133°37'	4 adults, 1 calf
3	"	"	"	"	3 adults, P&A
1	"	1601	57°11'	133°48'	adult
4+	"	1605	57°11'	133°48'	3+ adults, 1 calf
1	"	1656	57°08'	134°00'	adult
1	"	1915	57°05'	134°20'	adult
1	21 Jul 79	1749	57°08.8'	134°45'	adult
1	"	1758	57°10'	134°45'	adult
6	"	1800	"	"	5 adults, 1 calf (P&A)
2+	"	1934	57°19'	134°47'	1+ adults, 1 calf
8	22 Jul 79	1010	57°28'	134°51'	6 adults, 2 calves (photo-acoustic)
2	"	1224	"	"	2 adults (P&A)
1	"	1424	57°44'	134°54'	adult
10+	24 Jul 79	0705	57°46.8'	135°04'	8 adults, 2 calves (P&A)
2	"	1342	58°03.5'	135°05'	adults (photo)
1	"	1541	58°06'	135°15'	adult
1+	"	1812	58°19'	135°42'	?
1+	28 Jul 79	0840	58°26.5'	135°54'	?
1	"	1243	58°12.3'	135°40'	adult
1	"	1732	58°15.8'	134°40'	adult

Acoustic recordings were made while in the presence of humpback whales on 8 occasions. In all instances except one, the whales were found to be silent. On 22 July, recordings of humpback whales were made near Morris Reef at the south end of Chichagof Island, Alaska. In this instance we were in the presence of 6 adults and 2 calves that were engaged in repeated group feeding. Whales were surfacing in a group at approximately 30 second intervals. Then, after about 4 surfacings, they would dive for periods of 1-2 minutes and resurface in a tight group with lots of surface splashing. Three separate types of

"calls" similar to "song" components as well as some low "grumblings" were recorded. On the 3 instances that these sounds were recorded, they occurred approximately 5-15 seconds prior to a simultaneous surfacing. Ambient noise was a problem and it is doubtful that a useful sonogram could be extracted from it.

Minke Whale, Balaenoptera acutorostrata (Lacepede, 1804)

We had 1 sighting of a minke in Queen Charlotte Sound, B.C.

<u>Number of Whales Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Comment</u>
1	12 Jul 79	0845	53°38'N	130°43'W	adult whale

Sperm Whale, Physeter catodon (Linnaeus, 1758)

We had only 1 sperm whale sighting due west of San Pedro, California and well off the continental shelf.

<u>Number of Whales Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Comment</u>
1	29 Jun 79	1519	34°28'N	120°37'W	adult whale

Killer Whale, Orcinus orca (Linnaeus, 1758)

We encountered killer whales 3 times. Our first encounter began when killer whale "calls" were heard while we were trying to record a harbor porpoise in Chatham Sound outside of Prince Rupert, B.C. This sighting is a significant one, since Dr. Michael Bigg, of the Pacific Biological Station, Nanaimo, B.C., has felt that this region was absent of killer whales during the summer months. We sighted a large pod of 12+ whales with three males. One distant pod was sighted in Chatham Strait, Alaska, and may very well have been the same group we later encountered in Glacier Bay.

Number of Whales Seen	Date	Time	Latitude(°N)	Longitude(°W)	Comments
12+	13 Jul 79	2001	54°20'	130°29'	3 males (P&A)
5	22 Jul 79	1445	57°45'	134°54'	2 males
5	26 Jul 79	1041	58°48'	136°07'	2 males, no calves, (P&A)

Risso's dolphin, Grampus griseus (Cuvier, 1812)

We encountered Risso's dolphins only once, about 30 miles off Cape St. George, California. We were travelling in a slight fog when all of a sudden 6 Risso's dolphins appeared splashing and rolling about 60 feet off our starboard beam. We saw them surface once and then they quickly disappeared.

Number of Dolphins Seen	Date	Time	Latitude	Longitude	Comments
6	6 Jul 79	1804	41°18'N	124°42'W	seemed to be all adults.

Pacific White-sided dolphin, Lagenorhynchus obliquidens (Gill, 1865)

On all 3 occasions when we saw Pacific White-sided dolphins, they rode our bow and on 1 occasion they rode the bow with some Dall's porpoise.

Number of Dolphins Seen	Date	Time	Latitude	Longitude	Comments
7	10 Jul 79	1420	49°26'N	127°39'W	rode bow for 11min.
7	11 Jul 79	1048	51°07'N	130°10'W	rode bow with <u>P.</u> <u>dalli</u>
1	"	1904	52°01'N	130°23'W	veered off immed.

Dall's Porpoise, Phocoenoides dalli (True, 1885)

During the study period, we encountered Dall's porpoise 47 times totalling a count of more than 145 individuals. We travelled inside the 100 fathom contour, where groups are characteristically smaller than

"calls" similar to "song" components as well as some low "grumblings" were recorded. On the 3 instances that these sounds were recorded, they occurred approximately 5-15 seconds prior to a simultaneous surfacing. Ambient noise was a problem and it is doubtful that a useful sonogram could be extracted from it.

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1	12 Jul 79	0845	53°38'N	130°43'W	adult whale

Sperm Whale, Physeter catodon (Linnaeus, 1758)

We had only 1 sperm whale sighting due west of San Pedro, California and well off the continental shelf.

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1	29 Jun 79	1519	34°28'N	120°37'W	adult whale

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12+	13 Jul 79	2001	54°20'	130°29'	3 males (P&A)
5	22 Jul 79	1445	57°45'	134°54'	2 males
5	26 Jul 79	1041	58°48'	136°07'	2 males, no calves, (P&A)

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We encountered Risso's dolphins only once, about 30 miles off Cape St. George, California. We were travelling in a slight fog when all of a sudden 6 Risso's dolphins appeared splashing and rolling about 60 feet off our starboard beam. We saw them surface once and then they quickly disappeared.

<u>Number of Dolphins Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Comments</u>
6	6 Jul 79	1804	41°18'N	124°42'W	seemed to be all adults.

Pacific White-sided dolphin, Lagenorhynchus obliquidens (Gill, 1865)

On all 3 occasions when we saw Pacific White-sided dolphins, they rode our bow and on 1 occasion they rode the bow with some Dall's porpoise.

<u>Number of Dolphins Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Comments</u>
7	10 Jul 79	1420	49°26'N	127°39'W	rode bow for 11mi.
7	11 Jul 79	1048	51°07'N	130°10'W	rode bow with <u>P.</u> <u>dalli</u>
1	"	1904	52°01'N	130°23'W	veered off immed.

Dall's Porpoise, Phocoenoides dalli (True, 1885)

During the study period, we encountered Dall's porpoise 47 times totalling a count of more than 145 individuals. We travelled inside the 100 fathom contour, where groups are characteristically smaller than

in deeper waters, and found the average group size that we encountered to be 3.4 animals and the maximum school size to be 10+ animals.

<u>Number of Porpoise Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude (°N)</u>	<u>Longitude (°W)</u>	<u>Comments</u>
4-6	29 Jul 79	1100	33°26'	120°33'	rode bow
?	"	1424	34°25'	120°38'	off port bow
5	"	1454	34°26'	120°37'	off port bow
1	"	1521	34°28'	120°37'	off port bow
3	"	1820	34°30'	120°43'	?
6+	"	1840	"	120°45'	swam alongside
1	"	1920	-----	-----	surfaced 3 times
2	04 Jul 79	0903	36°17'	121°52'	rode bow
4-5	"	1010	36°20'	121°56'	rode bow
2	"	1105	36°23'	121°59'	rode bow
2	"	1015	36°20'	121°57'	rode bow
3	"	1330	36°36'	122°05'	
3	"	1552	36°45'	122°12'	moving south
2	"	2041	-----	-----	moving north
3-5	05 Jul 79	0915	38°07'	123°10'	?
5	"	0945	38°12'	123°11'	moving south, feeding
5+	"	1015	38°15'	123°16'	moving south
1-2	"	1145	38°23'	123°21'	moving south
10+	"	1149	38°24'	123°22'	rode bow in 2 groups
1-2	"	1158	38°25'	123°23'	moving south slow
4	"	1215	38°26'	"	swam slowly
1	06 Jul 79	0810	40°35'	124°41'	rode bow
2	"	1934	41°27'	124°45'	moving southwest
1+	07 Jul 79	0545	42°42'	124°41'	?
2	08 Jul 79	1943	46°43'	125°34'	moving south
2	"	2059	46°22'	125°50'	moving south
1	10 Jul 79	1022	49°18'	126°58'	rode bow
3+	"	1256	49°23'	127°27'	rode bow
2	"	2023	49°48'	128°25'	moving north
3	11 Jul 79	0855	50°52'	130°07'	off stern
4	"	0910	50°55'	130°02'	off starboard beam
6	"	0950	51°00'	130°08'	poss. same group as above
3	"	1025	51°04'	130°09'	milling
2	"	1032	51°04'	130°09'	rode bow
3	"	1040	51°05'	130°10'	rode bow
3	"	1249	51°21'	130°15'	rode bow
1	"	1302	51°24'	130°16'	off beam
3	"	1444	51°34'	130°19'	moving south, fast
4-5	12 Jul 79	0300	-----	-----	rode bow
4	"	0847	53°37'	130°42'	rode bow
10+	16 Jul 79	1755	-----	-----	moving south fast and slowly
7	17 Jul 79	0755	55°37'	132°27'	feeding, To1sto Bay
2-3	20 Jul 79	1545	57°12'	133°45'	rode bow
2	"	1604	57°11'	133°49'	rode bow

<u>Number of Whales Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u> (°N)	<u>Longitude</u> (°W)	<u>Comments</u>
2	22 Jul 79	1449	57°45'	134°45'	rode bow
3+	"		"	134°49'	1 mile off beam
2	24 Jul 79	1651	58°15'	135°28'	moving south

Harbor Porpoise, Phocoena phocoena (Linnaeus, 1758)

We had 7 sightings of harbor porpoise, all within the inland waters of Alaska and British Columbia. On 2 occasions, we attempted underwater recordings while in the presence of harbor porpoise. We were never able to assign any phonations positively to this species.

<u>Number of Porpoise Seen</u>	<u>Date</u>	<u>Time</u>	<u>Latitude</u> (°N)	<u>Longitude</u> (°W)	<u>Comments</u>
1-2	13 Jul 79	1955	54°20'	130°29'	acoustic, Chatham Sound, B.C.
3+	16 Jul 79	2041	55°37'	132°27'	acoustic, Tolstoi Bay, AK
1	18 Jul 79	1009	56°42'	132°56'	Wrangell Narrows
2	25 Jul 79	1015	58°33'	136°01'	Glacier Bay, AK
1	"	1308	58°42'	136°06'	Glacier Bay, AK
5	27 Jul 79	2055	58°26'	135°59'	Glacier Bay, AK
1	28 Jul 79	1733	58°19'	134°37'	moving south

Pinnipeds

We saw California sea lions (Zalophus californianus) on 19 occasions during the study period. These sightings were always of single animals in open water. They were pretty evenly distributed throughout the cruise. We had 118 harbor seal (Phoca vitulina) sightings during the study. There were 108 sightings in Glacier Bay itself. Most of these seals were hauled out on icebergs; about 40% were in the water. The remaining harbor seals sightings were animals in open water.

ENVIRONMENTAL DATA

Environmental data records were kept on an hourly basis during the expedition. Standardized forms were used and data was collected

for air and water temperatures, wind direction and velocity, wave direction, and height, and percent cloud cover. A list of this data is available upon request from the Ocean Research and Education Society (ORES). 9

SEABIRDS

Daily bird watches were made between 25-30 June and 4-7 July. Standard forms were used to record the following parameters: date, time, species, age class, number, flight direction, height of flight, and habits. Bird sighting lists are available upon request from ORES.

DISCUSSION AND CONCLUSIONS

In relation to humpback whales, the existence of a summer feeding ground for humpback whales off the Washington coast was documented. This area probably represents the southernmost feeding grounds in the eastern North Pacific, and may prove to be a good area to monitor for this species. The sighting of humpbacks off Prince of Wales Island are important for defining the range of these whales in southeastern Alaskan waters. Supporting the findings of other researchers in southeast Alaska this summer, we found the densest humpback concentrations in the Five Fingers area of Frederick Sound and in the Peril Strait region of Chatham Strait. Few humpbacks were sighted in Glacier Bay.

A sizable pod of killer whales (12+) was seen near Prince Rupert in Dixon Entrance, contrary to previous sightings. Fishermen's reports that killer whales are quite common throughout southeast Alaska was further substantiated by our observations in northern Chatham Strait and in Glacier Bay. Some recordings of killer whales made in Dixon Entrance are proving to be useful for dialect analysis of this

species in eastern North Pacific waters.

Finally, the numerous sightings of Dall's porpoise collected on the continental shelf should prove useful to current research being carried out on Dall's porpoise in the North Pacific in relation to the Japanese purse seine fishery.

(Chart #1)

- ★ 1 whale
- 2 whales
- 3-5 whales
- ▶ 6-10 whales



(Chart #2)

KEY

- ★ 1 whale
- 2 whales
- 3-5 whales
- ▲ 6-10 whales

